



DISCOVERY

L I F E S C I E N C E S

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Renal Dissociated Tumor Cell Thawing and Culturing Procedure

Safety:

- Primary tumor cells should be contained in a Class II biological safety cabinet and handled using Biosafety Level 2 (BSL-2) work practices and facilities. (2)

Cell Culture Media and Antibiotics:

- **Recommended cell culture media (2):**
 - RPMI-1640
- **Antibiotics:**
 - Penicillin (100 IU/mL)
 - Streptomycin (100 µg/mL)
 - Fungizone (2 µg/mL)
- **Supplements:**
 - 20% FBS
 - 2mM L-glutamine
- **Supplements recommended for unthawing samples**
 - DNase I (1 mg/mL), resuspended in PBS without calcium or magnesium and filter-sterilized

Unthawing Procedure:

1. On the day of the thaw, pre-warm 19 mLs of recommended cell culture media in a 37°C incubator.
2. Divide the media into two 15-mL conical tubes (1 tube with 9 mLs of media; 1 tube with 10 mLs of media).
3. Quickly thaw the DTC sample in a 37-40°C water bath until 2mm crystals remain. Move sample through the water to speed thawing.
4. Slowly add the 1-mL DTC sample to 9 mLs of pre-warmed media. Gently mix by inversion (do not vortex).

Renal Dissociated Tumor Cell Thawing and Culturing Procedure - Continued

5. Centrifuge the conical tube at 300 x g for 5-10 minutes (no brake). Carefully remove the supernatant.
6. After the initial wash to remove DMSO from the sample, gently resuspend the pellet in the remaining 10 mLs of pre-warmed cell culture media.
7. If the cells clump together, perform the following:
 - a. Add DNase I (1 mg/mL) to the cell culture media.
 - b. Incubate at 37°C for 5-10 minutes to facilitate digestion of released DNA.
 - c. Centrifuge the conical tube at 300 x g for 5 - 10 minutes (no brake).
 - d. Carefully remove the supernatant containing DNase I.
 - e. Gently suspend the pellet in 10 mLs of pre-warmed cell culture media. Go to the next step.
8. Allow cells to rest for at least 1 hour in the media at 37°C before checking the viability and plating.
9. Check the viability and cell number of the sample.
10. Plate the cells according to assay requirements.

Culturing Primary Cells:

1. The media recipe listed above can be used as a base media for tissue culture (2).
2. For cell culture, dissociated renal tumor cells can be seeded in 25 mm flasks using the media recipe listed above. Allow cells to adhere for at least 24 hours before washing away non-adherent cells with sterile PBS (4).
3. Please see the literature for further supplementation recommendations required by the cell types targeted for *in vitro* expansion.

References:

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4. Kim, F. J.; A. Campagna; L. Khandrika; S. Koul; S. Byun; A. vanBokhoven; E. E. Moore; H. Koul. 2008. Individualized medicine for renal cell carcinoma: establishment of primary cell line culture from surgical specimens. *J Endourol.* 22:2361-2366.